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Non Invasive Imaging

TARGET LIPID LEVELS AND CORONARY ARTERY CALCIUM SCORE PROGRESSION

Poster Contributions
Hall C
Sunday, March 30, 2014, 9:45 a.m.-10:30 a.m.

Session Title: Coronary and Peripheral Atherosclerosis
Abstract Category: 18. Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography
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Background: Data on the relationship between target lipid levels and risk of coronary artery calcium score (CACS) progression among relatively low risk multiethnic population are scant.

Methods: The cohort (N=5,705) was derived from the limited access dataset of the Multi Ethnic Study of Atherosclerosis obtained from the National Heart Lung and Blood Institute. Framingham risk score (FRS) was calculated for each participant. Participants were then divided into two categories (at-goal Vs not at-goal) based on their low density lipoprotein cholesterol (LDLc) and non-high density lipoprotein cholesterol (Non-HDLc) levels according to the National Cholesterol Education Program/

Adult Treatment Panel III guidelines for respective FRS risk categories. Multivariable regression analysis was performed to derive the association between target Non-HDLc and LDLc levels with incident CACS (N=2,927) and CACS progression (N=2,778).

Results: See Table.

Conclusion: 'Not at-goal' non-HDLc but not LDLc was significant associated with both incident CACS and progression of CACS. These results appear to lend support to the recommendation to pursue non-HDLc over LDLc as the primary therapeutic target.

Table 1. Target Non-High Density Lipoprotein Cholesterol (Non-HDLc), Low Density Lipoprotein Cholesterol (LDLc) and Coronary Artery Calcium (CAC) Progression

Non-HDLc (mg/dL)	Incident CAC	Model 1 RR (95%CI) p-value	Model 2 RR (95%CI) p-value
Overall [N = 2,927]			
Continuous		1.01 [1.00-1.01] <0.001	1.01 [1.00-1.01] <0.001
Categorical			
At-Goal Non-HDLc	320 (14.2%)	Reference	Reference
Not At-Goal Non-HDLc	22.5(22.5%)	1.47 [1.23-1.74] <0.001	1.34 [1.12-1.60] 0.001
Non-HDLc (mg/dL)	**CAC Progression**	**Model 1 β (95%CI) p-value**	**Model 2 β (95%CI) p-value**
Overall [N = 2,778]			
Continuous		0.11 [0.02 - 0.21] 0.023	0.11 [0.03 - 0.19] 0.007
Categorical			
At-Goal Non-HDLc	1,785	Reference	Reference
Not At-Goal Non-HDLc	993	19.8 [13.3 to 26.2]<0.001	10.1 [2.78 to 17.5] 0.007
LDLc (mg/dL)	**Incident CAC**	**Model 1 RR (95%CI) p-value**	**Model 2 RR (95%CI) p-value**
Overall [N = 2,927]			
Continuous		1.01 [1.00-1.01] 0.006	1.01 [1.00-1.01] <0.001
Categorical			
At-Goal LDLc	323 (14.4%)	Reference	Reference
Not At-Goal LDLc	148 (21.9%)	1.36 [1.14-1.61] 0.001	1.28 [1.07-1.53] 0.006
LDLc (mg/dL)	**CAC Progression**	**Model 1 β (95%CI) p-value**	**Model 2 β (95%CI) p-value**
Overall [N = 2,778]			
Continuous		-0.02 [-0.13 to 0.08]0.631	0.08 [-0.01 to 0.17] 0.08
Categorical			
At-Goal LDLc	1,731	Reference	Reference
Not At-Goal LDLc	1,047	14.3 [6.68 to 21.9]<0.001	5.38 [-1.76 to 12.5] 0.139

Abbreviation: RR = Relative Risk Ratio, CI – Confidence Interval

Model 1: Non-HDLc adjusted for age (continuous), sex (binary), race and follow-up duration
Model 2: Model 1 + systolic blood pressure (continuous), anti-hypertension medications (binary), smoking (binary), diabetes (binary), lipid lowering therapy (binary) and waist-hip ratio.

* Statistical significance p<0.05.

¶ Interaction p-value of target non-HDLc and LDLc with gender and ethnicity for both the study outcomes were statistically non-significant.

‡ Incident CAC was defined as detectable CAC at the follow-up examination (either examination 2 or 3) in a participant free of detectable CAC at examination 1, while CAC progression was defined as a change in CAC volume score in participants who had detectable CAC at examination 1 (N= 2,778).